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## ABSTRACT OF THE DISCLOSURE

An exposure apparatus includes a preliminary chamber which accommodates a mask on which a pellicle is attached, an exhaust device which exhausts a gas from the preliminary chamber, a deformation measuring device which measures the deformation of the pellicle, and a control section which regulates the amount of a gas to be exhausted from the preliminary chamber. At the time of replacing a gas in a space by exhausting the gas from the preliminary chamber, the control section adjusts the exhaust amount of the gas from the preliminary chamber based on the result of the measurement made by the deformation measurement device so that the deformation of the pellicle is within a predetermined range. This can ensure stable gas replacement while preventing the pellicle from being damaged.